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Errors in the Testing Process in Primary Care:

A Report from the American Academy of Family Physicians' National Research Network

Background

Laboratory and other diagnostic tests are frequently ordered by primary care physicians in the outpatient setting. An average family physician sees 100 patients per week and orders diagnostic tests on 39% of them. While some of these tests are performed in the physician office laboratory, the majority are sent to outside laboratories or facilities. The pre-analytic steps of the testing process in the physicians' office are ordering and implementing. The post-analytic steps in the physicians' office are tracking and return of results, response and documentation, patient notification and patient follow-up. The actual processes involved in these steps have not been well described, nor have the errors that are occurring in family physicians' offices in this testing process.

Testing Process

- Test ordered and implemented
- Test performed
- Test results tracked
- Results returned to office & clinician
- Test results documented and filed
- Patient notified of test results
- Patient monitored through follow-up

Objective

The purpose of this study was to describe the types and frequencies of testing process errors reported by family physicians and their staff.

Methods

Design: A descriptive study of testing process error reports

- Setting: Eight family practices of the American Academy of Family Physicians' National Research Network (AAFP NRN)
- Participants: Physicians, residents, nurse practitioners (NPs), physician assistants (PAs), nurses and staff at participating practices.
- Main outcome measure: Reports of testing process events described as "anything that happened in my practice (related to the testing process) that should not have happened and that I do not want to happen again."
- Data collection: Anonymous reports collected for 8 months on either a paper form or on a secure web site.
- Data analysis: Events coded to establish taxonomy of errors. Contributing factors, harm and consequences coded to categories devised from data.

Event Reports Received

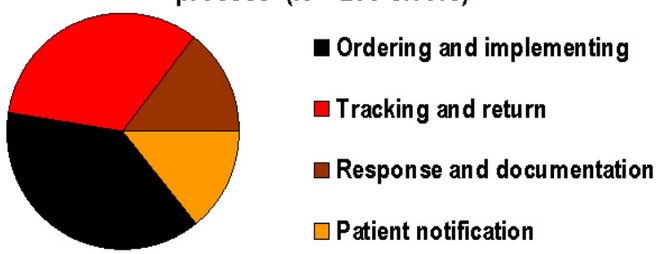
♦ Reports were made by all types of participants

Category of Reporter	% of all reports made
• Physicians & residents	41%
• Staff and nurses	52%
• NPs and PAs	7%

- 661 separate event reports were received
- 273 analyzed as of this date and are reported here
- 433 errors were reported in 273 reports; (96 reports had 2 errors, 29 had 3 errors and 4 had 4 errors)
- 235 (of 433) errors could be assigned to a step in the testing process
- 198 errors could not be assigned to a single step in the

Types of Error	Frequency of errors (N=433)
• Pre-analytical step	90 (21%)
• Post-analytical step	145 (34%)
> Tracking & return	78
> Response and documentation	34
> Patient notification	33
• Unable to determine testing process step	198 (45%)
> Charting and filing	82
> Computer	20
> Medication	18
> Communication	9
> Appointment	6
> Rooms and patient flow	6
• Other	57

Reported testing process errors by step in the process (N = 235 errors)



Stories of Errors from Participants

♦ **Ordering and implementation**

"It was a supervisor in the lab who told me wrong - It comes back to the day shift telling us one thing - and the evening shift doing another."

♦ **Tracking and return**

"If the patient doesn't call and say, I haven't heard about my test results, we really don't know that they're not back."

♦ **Response and documentation**

"I think we have a problem with filing. For example, I may never see a report, or I may sign the report but it's never entered into the chart. I'm seeing patients 2 weeks later and it's not there."

♦ **Patient notifcation**

"There are about 12 different systems for notifying patients. Every doctor has their own way of doing that."

Reported Consequences

♦ Type of consequence reported	# of consequences reported (N=345)
• None or don't know	138
• Delay in care	47
• Lost time for patient	37
• Emotional distress for patient	22
• Physical distress for patient	15
• Financial distress for patient	4
• Emotional, financial or time distress for physician or practice	82

Reported Harms

Harm could not be determined in 69 reports, but of the rest, most (139) were not felt to lead to patient harm.

Significance

- This preliminary analysis reveals that errors are occurring throughout the spectrum of pre- and post-analytic steps in the testing process in family physicians' offices. While significant harm was rare, negative consequences for patients and physicians' practices were common.
- Further analyses are being performed on these data to better quantify and clarify the relationships of errors to harm, consequences, cascading relationships and mitigating factors.
- Future research should be performed to assess which errors are occurring entirely within the individual office setting, and which are dependent on communication between testing facilities and offices. Interventions must be focused on both levels of care.